IN THE CLAIMS:

1. (previously presented) A method of chemically mechanically polishing a substrate surface comprising:

A) providing a substrate, said substrate being a semiconductor material or memory device material and having a surface comprising at least one material comprising copper, iron, nickel, tungsten, titanium, aluminum, polysilicon, or noble metals;

B) providing a fluid polishing composition comprising an organosulfonic acid oxidizer, said organosulfonic acid oxidizer having one ring structure comprising carbon, a sulfonate moiety substituted onto a carbon atom in the ring structure, and a polar moiety substituted onto the ring on an ortho position or a meta position from the sulfonate moiety;

C) providing a pad; and

D) moving the pad against the substrate with the polishing composition therebetween to effect chemical mechanical polishing of at least one material comprising copper, iron, nickel, tungsten, titanium, aluminum, polysilicon, or noble metals.

2. (previously presented) The method of claim 1, wherein the organosulfonic acid oxidizer has an electrochemical oxidation potential greater than 0.7 V, the ring structure is a benzene ring, and the sulfonate moiety attached directly to the ring structure.

3. (previously presented) The method of claim 2, wherein the polar moiety substituted onto the ring in the ortho or meta position from the sulfonate moiety comprises a sulfonate moiety, a sulfate moiety, an amino moiety, a nitro moiety, a nitroso moiety, a hydroxyl moiety, a carboxylate moiety, a sulfamic acid moiety, or a methoxy moiety.

4. (previously presented) The method of claim 3, wherein the polar moiety is substituted directly onto the ring, and wherein the polishing composition further comprises an abrasive.

5. (previously presented) The method of claim 3, wherein the polar moiety is selected from a sulfonate moiety, an amino moiety, and a nitro moiety, substituted directly onto the ring in a meta position, and wherein the polishing composition further comprises an abrasive.

6. (previously presented) The method of claim 3, wherein the amount of organosulfonic acid oxidizer is between about 0.1% to about 20% by weight, and the amount of abrasive is between about 1% to about 15% by weight, based on the weight of the fluid composition.

7. (previously presented) The method of claim 3, wherein the polishing composition further comprises an abrasive and a hydroxylamine compound.

8. (previously presented) The method of claim 7, wherein the amount of organosulfonic acid oxidizer is between about 0.1% to about 20% by weight, the amount of abrasive is between about 1% to about 15% by weight, and the amount of hydroxylamine compound is between about 0.1% to about 5% by weight, based on the weight of the fluid composition.

9. (previously presented) The method of claim 3, wherein the polishing composition is substantially free of additional oxidizers.

10. (previously presented) The method of claim 1, wherein the organosulfonic acid oxidizer has an electrochemical oxidation potential greater than 0.7 V, the ring structure comprises a plurality of carbon atoms and at least one of N, S, or O, and the sulfonate moiety attached directly to the ring structure.

11. (previously presented) The method of claim 10, wherein the polar moiety substituted onto the ring in the ortho or meta position from the sulfonate moiety comprises a sulfonate moiety, a sulfate moiety, an amino moiety, a nitro moiety, a nitroso moiety, a hydroxyl moiety, a carboxylate moiety, a sulfamic acid moiety, or a methoxy moiety.

12. (previously presented) A method of chemically mechanically polishing a substrate surface comprising:

A) providing a substrate, said substrate being a semiconductor material or memory device material and having a surface comprising at least one material comprising copper, iron, nickel, tungsten, titanium, aluminum, polysilicon, or noble metals;

B) providing a fluid polishing composition consisting essentially of:

at least one organosulfonic acid oxidizer, said organosulfonic acid oxidizer having a ring structure comprising carbon, a sulfonate moiety substituted onto a carbon atom in the ring structure, and a polar moiety substituted onto the ring on an ortho position or a meta position from the sulfonate moiety,

water,

optionally at least one hydroxylamine compound,

optionally at least one abrasive, and

optionally at least one additive selected from the group consisting of Acids, Bases, Chelators, Corrosion Inhibitors, Surfactants, Rheological agents, and combinations thereof;

C) providing a pad; and

D) moving the pad against the substrate with the polishing composition therebetween to effect chemical mechanical polishing of at least one material comprising copper, iron, nickel, tungsten, titanium, aluminum, polysilicon, or noble metals.

13. (previously presented) The method of claim 12, wherein the polishing composition is substantially free of additional oxidizers.

14. (previously presented) A method of cleaning a substrate surface comprising:

A) providing a substrate, said substrate being a semiconductor material or memory device material and having a surface comprising at least one material comprising copper, iron, nickel, tungsten, titanium, aluminum, polysilicon, or noble metals, and further comprising residue from contacting a chemical mechanical polishing composition in a previous step;

B) providing a fluid cleaning composition comprising an organosulfonic acid oxidizer, said organosulfonic acid oxidizer having a ring structure comprising carbon, a sulfonate moiety substituted onto a carbon atom in the ring structure, and a polar moiety substituted onto the ring on an ortho position or a meta position from the sulfonate moiety;

C) contacting the substrate with the cleaning composition at a temperature and for a time sufficient to remove the chemical mechanical polishing residue from a previous step.

15. (previously presented) A method of cleaning a substrate surface comprising:

A) providing a substrate, said substrate being a semiconductor material or memory device material and having a surface comprising at least one material comprising copper, iron, nickel, tungsten, titanium, aluminum, polysilicon, or noble metals, and further comprising post-etch residue from etching the substrate in a previous step;

B) providing a fluid cleaning composition comprising an organosulfonic acid oxidizer, said organosulfonic acid oxidizer having a ring structure comprising carbon, a sulfonate moiety substituted onto a carbon atom in the ring structure, and a polar moiety substituted onto the ring on an ortho position or a meta position from the sulfonate moiety;

C) contacting the substrate with the cleaning composition at a temperature and for a time sufficient to remove the post-etch residue.

16. (previously presented) A method of cleaning a substrate surface comprising:

A) providing a substrate, said substrate being a semiconductor material or memory device material and having a surface comprising at least one material comprising copper, iron, nickel, tungsten, titanium, aluminum, polysilicon, or noble metals, and further comprising a resist from a previous step;

B) providing a fluid cleaning composition comprising an organosulfonic acid oxidizer, said organosulfonic acid oxidizer having a ring structure comprising carbon, a sulfonate moiety substituted onto a carbon atom in the ring structure, and a polar moiety substituted onto the ring on an ortho position or a meta position from the sulfonate moiety;

C) contacting the substrate with the cleaning composition at a temperature and for a time sufficient to remove the resist.

17. (Previously presented) The method of claim 1, wherein the polishing composition is substantially free of additional oxidizers.